DOCUMENT RESUME

ED 245 697 IR 050 769

AUTHOR Gordon, Dena W.
TITLE Online Training for the End User or Information Consumer.
PUB DATE May 83
NOTE 13p.; Paper presented at the Mid-Year Meeting of the American Society for Information Science (12th, Lexington, KY, May 22-25, 1983).
PUB TYPE Information Analyses (070) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Computer Assisted Instruction; Cost Effectiveness; Databases; *Information Scientists; Literature Reviews; *Online Systems; *Technological Advancement; *Training Methods
IDENTIFIERS *End Users; *Online Search Skills

ABSTRACT

A review of the literature indicates that innovations in technology are making it possible for the consumer of information, the end user, to gather his own information online. The information specialist's role is changing from that of a researcher to a trainer and leader in the information gathering process. Reports on end user training indicate varying degrees of success. The results of various training methods including in-person training, user manuals, and computer-assisted instruction, as well as alternatives to training such as transparent systems and simplified systems, all suggest that the best way to teach online searching is to take people by the hand and in an intimate and relaxed setting show them how to search. This utopian view does not fit well with reality. The challenge today and in the future is to train large numbers of end users in a cost-effective way. As a consequence, the explosion in the number of users means that training innovations are a necessity. (Author/DMC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☒ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Dena W. Gordon
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

ED245697

ONLINE TRAINING FOR THE END USER OR INFORMATION CONSUMER

Dena W. Gordon, Data Courier Inc

ABSTRACT

Innovations in technology are making it possible for the consumer of information, the end user, to gather his own information online. The information specialist's role is changing from that of a researcher to a trainer and leader in the information gathering process. Reports on end user training indicate varying degrees of success. The challenge today and in the future is to train large numbers of end users in a cost-effective way.

THE CHANGING ENVIRONMENT

A revolution has swept through offices during the last five years. Communicating terminals, automated office systems, mini- and microcomputers, and hundreds of other technological innovations have changed the way information moves within our society.

There are no longer simple answers to who has information, who finds it, and who uses it in the decision-making process. The searching of online bibliographic systems, for example, traditionally has been the domain of the information specialist. Today, the person with a question has new avenues for getting the answer, and the librarian's role is changing in the process.

The end user--the person with a question--is an elusive species. With the proliferation of terminals in a broad range of departments, this ultimate consumer of information is now technically able to seek the answers directly.

One prediction is that in the future "professionals will tend to support problem-solving and decision-making activities, rather than delegating this task to information specialists." (1)

But what about the information specialists? This revolution is affecting them directly, and the impact is a favorable one. Information specialists in many organizations already are able to concentrate on more complex data collection than in the past. Daily, more people with terminals in their departments are conducting much background information collection themselves.

The information specialist is emerging as a consultant--a guide to the available electronic and print resources, a person to call upon for searches in unfamiliar territory.

Charles Meadow, now DIALOG's Manager of Customer Services, acknowledges that the revolution is creating a need to train a broader

IR050769

range of professionals. (2) As organizations get access to easier-to-use systems, professionals in a range of functions want the information directly. Thus, a demand for ways to make the systems work at the hands of a variety of new users is beginning to swell.

The former General Manager of SDC Search Service and now President of Cuadra Associates, Carlos Cuadra, notes that most end users do not need access to dozens of databases. (3) Their needs are fairly narrow. Consequently, professionals outside the library will want information from a manageable number of databases, lessening somewhat the need for mastering a broad range of files.

By applying specific subject expertise in the research process, the professional will probably be able to obtain satisfactory results from searching online. But to accomplish this success, the online information expert must provide the basic training and support.

Research conducted by Data Courier in 1981 and 1982 suggests that end user searching will continue to increase. The catch is that a negative first experience online may alienate some end users from specific systems or databases. Thus, the stakes are high for online systems and for publishers of business-targeted databases.

THE CHALLENGES

Surveying the emerging discipline of end user training, two challenges are clear. First, relatively few online systems and only a handful of database publishers have ever tried training end users to tackle online searching. Second, the documented efforts have a remarkable degree of variations. That is, no two organizations have tried exactly the same thing.

As might be expected, little consensus exists about how to train end users. However, three conclusions about online training for end users may be of interest at the outset of this review of case studies:

- In-person user training is notoriously difficult to schedule and is very costly.

- No one is sure at what level to target the information. Shoot too low and the informed people in the audience feel patronized; aim too high and you lose them.

- There are more end users than anyone ever imagined. Data Courier's research shows that professionals in virtually all functional departments of Fortune 1000 companies have access to terminals. The logistics of reaching so many people with such diverse interests makes online training a mass communication problem yet unsolved.

In the remainder of this paper, I will examine recent instances of

end user training, and conclude by commenting on the outlook in light of the challenges which await us.

THE IN-PERSON TRAINING APPROACH (BUSINESS PEOPLE)

The LEXIS service offers full text legal databases online. Produced by Mead Data Central, LEXIS has over 10 years' experience in training attorneys and librarians in law firms.

The earliest LEXIS training sessions lasted two days and were conducted in a retreat setting, ostensibly away from the bustle of the firms' offices. Later--because of cost and practicality--the training evolved to one six-hour day of in-person instruction. Eventually the format was supplemented with videocassettes produced by the Mead staff.

At this time, in-person training is handled in groups in two-hour blocks. Users may attend training sessions in the firm's offices or at 20 strategically located LEXIS permanent learning centers.

According to George Relles at LEXIS, more than 40,000 LEXIS users received in-person training last year. Mead also offers online tutorials or self-paced manuals, and telephone customer service. In the future, some form of computer-assisted instruction is likely to be offered, Relles said.

The Congressional Research Service (CRS) illustrates a pattern not unlike that followed by LEXIS. (4) In 1974, CRS began training for Congressional staff on the SCORPIO system, the Library of Congress online information retrieval system. One-on-one tutorials were held in Congressional offices. By 1978 group training evolved. Each user attended three two-hour sessions of 10 to 12 students. The group sessions included lectures, workbooks and hands-on searching. CRS tried to give students about three hours of hands-on time.

Within the last two years, CRS has switched to a computer-assisted instruction format using the protocols of Control Data Corporation's PLATO system. The section on computer-assisted instruction will discuss the use of PLATO.

ITT Dialcom offers automated office services principally to governmental agencies and corporations. The heart of Dialcom's services is an electronic mail system, for writing, sending and filing memoranda, reports and other documents over the Primecom system. The firm has been in the electronic mail business for about 10 years and has been wrestling with training problems throughout that period.

When an organization signs a contract, Dialcom conducts at least one and often more training sessions at the client's offices. The sessions are limited to 50 users and designed around using the system, rather than formal course work. The key to Dialcom's success,

according to Chris Brown, Executive Vice President for Marketing, is an easy to use system that is nearly foolproof.

Once service is set up and basic instruction completed, a contact person in the organization is named. Future training, troubleshooting and special services are coordinated through that individual, an approach which greatly reduces the number of calls and problems flowing into the Dialcom customer services offices.

THE IN-PERSON TRAINING APPROACH (SCIENTIFIC AND TECHNICAL PROFESSIONALS)

Professionals in the scientific and technical areas need access to databases with very specialized emphasis. Information specialists have been the leaders in training end users to search technical files.

User Services Coordinator for PsycINFO, Susan Marleski, reported on a four-hour workshop for psychologists (5) given as part of a continuing education program sponsored by the American Psychological Association. Participants were taught simple subject and author searches of the PsycINFO database utilizing the DIALOG system. Most had their first hands-on experience searching online.

A series of special three-day workshops for science educators held between 1977 and 1979 was designed by Erica Scurr and Diane K. Yoder. (6) The purpose of the workshops was to teach online searching skills to educators who could then integrate the concept into their curricula.

Some searchers are conducting in-person training programs for end users within their organizations. Oregon State University developed a pilot course in online bibliographic searching for upper division and graduate students in the biological sciences. (7, 8)

Students were taught how to search the BIOSIS database, because of the complexity of the file and its relevance to the students' interests. A workbook, "An Introduction to Online Access to BIOSIS Previews Via the Lockheed Information Retrieval Service" was developed to supplement DIALOG and BIOSIS documentation. It consisted of four parts:

- A brief introduction to the organization of online databases and systems
- An introduction to DIALOG commands with a number of exercises
- A discussion of the organizaton of the BIOSIS database
- A final chapter on search strategy models and techniques.

After the pilot course was completed, an introductory section

of search exercises was added to the course outline. Because the students' evaluation of the program was favorable, OSU is continuing it.

In another industry setting, 15 organic research chemists at Kodak Research Laboratories attended in-person training conducted by Judith Haines. (9) They were trained to search Chemical Abstracts' files on DIALOG.

In September 1979, Haines conducted two 1½-hour training sessions for the chemists, covering logon protocols, DIALOG commands and the structures of CA Search and Chemname. Handouts included logon charts, the "Pocket Guide to DIALOG Commands," sample CA Search and Chemname searches, and practice questions for the corresponding ONTAP files. After these sessions, a DIALOG representative presented a session on chemical databases.

Haines monitored usage for one year after the training. She suggests the following, as a result of the pilot course:

- Training is more successful when participation is voluntary rather than mandatory.
- Equipment needed for training must be in place at the training site when the program begins
- After training is completed, searchers need easy access to equipment
- A group of short training sessions on the basics of searching rather than a long intensive workship is a more desirable approach.

In another training project, 12 graduate students at Ohio State University were taught search techniques to prepare them for jobs in natural resources requiring information handling skills. (10, 11) Their training was integrated into the curriculum of the graduate course "Research Methods in Natural Resources."

First the students were taught to search relevant printed indexes. The next step was to learn about the online counterparts to the printed indexes. Three lab sessions covered the mechanics of searching, search exercises and an explanation of two relevant databases, Agricola and NTIS. By the end of the course, all the students were capable of conducting an online search alone or with some coaching.

USER MANUALS

Some efforts have been made to design printed guides as substitutes for formal training. A project to design a manual to teach science students online searching was undertaken by Scurr and Yoder. (6)

The 250-page manual, "CA Search for Beginners," begins with an introduction to online searching, including a discussion of print vs. online, Boolean operators and truncation.

The next section covers the command language of one online system. (Different versions of the manual exist for DIALOG, BRS and ORBIT.) Finally, the manual covers content, structure and format of CA Search. The largest portion of the manual illustrates 20 searches in question and answer format. A student searches online on CA's reduced-rate files on the various systems (e.g., ONTAP).

The author concluded that about 20 hours is needed to complete the course--12 hours to study the manual, 4 hours to develop search strategies, and 4 hours to search online.

COMPUTER-ASSISTED INSTRUCTION

Several academic, governmental and industrial organizations use computer-assisted instruction (CAI) to teach end users to search. CAI offers many advantages and can be extremely effective if:

- The online system is fairly stable, requiring minimal, if any, substantive changes
- Users are geographically dispersed
- Turnover rate is high
- There is a need to provide for variable learning rates
- Training loads fluctuate
- Scheduling training time is difficult for the user or for the training organization, or
- Tracking student progress is an important and time-consuming task. (12)

One early use of CAI was an online training package developed at the University of Pittsburgh. "Hands On Online in a Multi-System Multi-Database Trainer," or TRAINER, provides programmed instruction and practice for DIALOG and ORBIT users by emulating the systems. (13, 14, 15) Special programs allow users to practice the commands and search strategies unique to specific systems without going into the real systems.

TRAINER consists of nine modules. The first seven are tutorial, introducing commands and techniques. Modules 8 and 9 are system emulators for DIALOG and ORBIT, where participants can test their newly learned skills.

The Congressional Research Service began using CAI on a test basis in October 1980. (16, 17) The course consists of

- A one-hour overview of the SCORPIO system given by an instructor to a group of 12-20 users
- Individual instruction with the PLATO terminal, and
- Practice problems on the SCORPIO system.

A CRS staff person is available during the training sessions. Overall results were quite favorable, according to Griffith and Norton's reports. CRS plans to continue the PLATO instruction for at least another year.

Individualized Instruction for Data Access (IIDA) was developed by Drexel University and the Franklin Research Laboratories. (18) This system was designed to assist users in performing online bibliographic searches. It became operational in January 1979.

The system has two modes. The exercise mode consists of a "canned" exercise, a limited search and advanced commands and strategy. The assistance mode is the normal operational mode. As the user searches, IIDA monitors the searches for errors or unproductive usages such as null sets, repetition of commands, unused sets, "thrashing," and "dwelling."

Landsberg and colleagues (19) also reported early use of IIDA at Exxon facilities. Research assistants helped in the training program, an expensive but necessary addition to the program.

TRANSPARENT SYSTEMS

An alternative to training end users in the use of complex online systems is the development of transparent systems allowing searchers to bypass an understanding of the specific differences of databases, systems, command languages, vocabularies and access protocols.

Williams and Preece (20) reported on a project at the University of Illinois to design a Total Transparent Information Retrieval System (TTIRS). Marcus and colleagues (21) developed a Connector for Networked Information Transfer (CONIT) which translates user requests into the correct command language for any of several online systems.

Niehoff and colleagues (22, 23, 24) reported work on a Vocabulary Switching System (VSS) at Battelle's Columbus Laboratories. The VSS assists the user by translating information requests into the database language of one or more target databases.

An interesting development in transparent systems is microDISCLOSURE. Available in January 1983, the microDISCLOSURE diskette

allows a user to search the DISCLOSURE II database through DIALOG on an IBM Personal Computer. (25)

MicroDISCLOSURE can perform the logon to the DIALOG system and enter the user's password. Then a menu is displayed asking what companies or search criteria are desired. The microDisclosure software converts the user's requests into the appropriate DIALOG commands. Once searching is completed, output can be displayed in standard DIALOG formats or saved on a diskette.

DISCLOSURE plans to develop similar capabilities for the Apple and TRS-80 microcomputers in 1983.

SIMPLIFIED SYSTEMS

Another alternative to teaching the end user to use a complex online system is to simplify the system. DIALOG and BRS have recently introduced simplified after hours systems.

DIALOG's after hours system, Knowledge Index (KI), is similar to the DIALOG system, but commands are limited to BEGIN, FIND, EXPAND, PAGE, DISPLAY, RECAP, KEEP, and ORDER. When two or more words are entered in a string, adjacency is assumed. Introduced in late 1982, KI is supported by a step-by-step workbook (27) and toll-free search assistance. Although no in-person training is planned at this point, according to Charles Meadow, other training techniques are being investigated.

BRS/After Dark is a simplified version of the BRS system. Like KI, After Dark allows the searcher to enter words in a string, and adjacency is assumed. Users are prompted at the end of each search with a list of instructions. After Dark is supported by the BRS/After Dark User's Manual (27) and toll-free search assistance. Currently, BRS has no plans for After Dark in-person training, says Cathy Anderson, Manager of the After Dark feature.

The development of KI and After Dark signals a new step in the process of moving toward end user searching. Two providers of complex online systems have chosen to develop simplified systems for end users rather than establish training programs for the existing complex systems.

OUTLOOK

The future holds a number of exciting challenges for the information specialist. Rapid developments in software technology are making system commands simpler. Today, complex instructions are necessary to link a LEXIS terminal to the terminal user. Tomorrow such interactions will be invisible to the terminal user.

The major impact of such advanced software technology will be to

make the communicating terminal a household concept. A desk will be incomplete without the electronic device permitting a professional to access information on the company's computer system and hundreds of others worldwide. Information is becoming a consumer product.

One of the principal tasks for database publishers, timesharing companies and information specialists will be dealing with the confusion that comes with rapid change. More people than ever before will have a small amount of knowledge about the possibilities, but will need help in developing a thorough understanding of online. Moving them to this important level is the task of the future.

As this review of the literature suggests, the best way to teach online searching is to take people by the hand and in an intimate and relaxed setting show them how to search. This utopian view does not fit well with reality. It is costly to provide one-on-one or small group training. As a consequence, the explosion in the number of users means that training innovations are a necessity. For example:

- Videodisc technology linked to a microcomputer may help bring personal instruction to some end user training
- DISCLOSURE II's microDISCLOSURE diskette is one possible alternative to system specific training
- The ONTAP-type concept positions training as a service to stimulate usage on a particular system
- Hardware manufacturers are working to make the automated office familiar and easy to use.

The outlook for the information specialist is bright. Not only are these professionals becoming the resource for training the end user to gather information, they are the experts and will be among the leaders who will have the greatest impact on the way information ultimately moves in our society.

REFERENCES

1. Lancaster, F. W. and Linda C. Smith. "On-line Systems in the Communication Process: Projections," Journal of the American Society for Information Science. 31(3): 193-200; 1980.

2. Meadow, Charles T. "Online Searching and Computer Programming: Some Behavioral Similarities (Or . . . Why the End Users Will Eventually Take Over the Terminal)," Online 3(1): 49-52; 1979.

3. Cuadra, Carlos A. "Surviving the Eighties: New Roles for Publishers, Information Service Organizations, and Users," 1980 Miles Conrad Memorial Lecture, National Federation of Abstracting and Indexing Services, NFAIS Newsletter 22(2): 23-39; 1980.

4. Griffith, Jeffrey C. and Nancy Protho Norton. "Training Congressional Staff to Search the SCORPIO Online System." In: Communicating Information; Proceedings of the 43rd ASIS Annual Meeting. Washington, DC: ASIS; 1980, 348-350.

5. Marleski, Susan. "End-User Training: A Model for the Information Professional." In: Online '82 Conference Proceedings. Weston, CT: Online Inc.; 1982, 25-30.

6. Scurr, Erica and Diane K. Yoder. "An Introductory Manual for Training Science Students in On-line Access to CA Search." In: Communicating Information; Proceedings of the 43rd ASIS Annual Meeting. Washington, DC: ASIS; 1980, 188-190.

7. Brooks, Kristina M. "Non-Mediated Usage of Online Retrieval Systems in an Academic Environment." In: National Online Meeting Proceedings. Medford, NJ: Learned Information; 1982: 35-39.

8. Parks, Leo W., Kristina Brooks, and Robert Lawrence. "An Instructional Experiment in Usage of Online Information Retrieval Systems by Entry-Level End-Users," Information Services & Use. 1(5): 271-277, 1982.

9. Haines, Judith S. "Experiences in Training End-User Searchers," Online. 6(6): 14-23; 1982.

10. Bayer, Bernard, and Sharon W. Schwerzel. "A Comparison of Online and Manual Searching in Selected Areas of Research." In: National Online Meeting Proceedings. Medford, NJ: Learned Information; 1982, 23-27.

11. Schwerzel, Sharon W., Susan V. Emerson, and David L. Johnson. "Self-Evaluation of Competencies in Online Searching By End-Users After Basic Training." In: Information Interaction; Proceedings of the 45th ASIS Annual Meeting. Washington, DC: ASIS; 1982, 272-275.

12. Saunders, Marian L. "Educating the Online User: The Role of the In-House Coordinator. A Systematic Approach to Training." In: Online '81 Conference Proceedings. Weston, CT: Online Inc.; 1981, 273-278.

13. Caruso, Elaine, and John Griffiths. "A TRAINER for Online Systems," Online. 1(4): 28-34; 1977.

14. Caruso, Elaine. "Hands On Online: Bringing It Home," Online Review. 2(3): 251-268; 1978.

15. Caruso, Elaine. "TRAINER." Online. 5(1): 36-38; 1981.

16. Griffith, Jeffrey C. and Nancy Protho Norton. "A Computer Assisted Instruction Program for End Users of An Automated Information Retrieval System." In: National Online Meeting Proceedings. Medford, NJ: Learned Information; 1981: 239-248.

17. Griffith, Jeffrey C. "Using PLATO As a Means of Providing Introductory Online Training on the SCORPIO System: Student Assessments." In: National Online Meeting Proceedings. Medford, NJ: Learned Information; 1982: 145-157.

18. Meadow, Charles T. "The Computer As a Search Intermediary," Online. 3(3): 54-59, 1979.

19. Landsberg, M. Karen, Barbara Lawrence, Patricia A. Lorenz, and Charles T. Meadow. "A Joint Industrial-Academic Experiment: An Evaluation of the IIDA System." In: Communicating Information; Proceedings of the 43rd ASIS Annual Meeting. Washington, DC: ASIS; 1980, 406-408.

20. Williams, Martha and Scott Preece. "Elements of a Distributed Transparent Information Retrieval System." In: Communicating Information; Proceedings of the 43rd ASIS Annual Meeting. Washington, DC: ASIS; 1980: 401-402.

21. Marcus, Richard S. "Search Aids in a Retrieval Network." In: Communicating Information; Proceedings of the 43rd ASIS Annual Meeting. Washington, DC: ASIS; 1980: 394-396.

22. Niehoff, R. T. and S. Kwasny. "The Role of Automated Subject Switching In a Distributed Information Network," Online Review. 3(2): 181-194; 1979.

23. Niehoff, Robert, Stan Kwasny, and Michael Wessells. "Overcoming the Database Vocabulary Barrier--A Solution," Online. 3(4): 43-54; 1979.

24. Niehoff, Robert. "The Optimization and Use of Automated Subject Switching for Better Retrieval." In: Communicating Information; Proceedings of the 43rd ASIS Annual Meeting. Washington, DC: ASIS; 1980, 397-400.

25. "DISCLOSURE II Via Your Microcomputer," DISCLOSURE Online News. 1; October 1982.

26. Knowledge Index User's Workbook. Palo Alto, CA: DIALOG Information Services, Inc.; 1982.

27. BRS/After Dark User's Manual. Latham, NY: BRS; 1983.